

Remarks

The Applicants have amended Claim 15 to further clarify various aspects of the Applicants' direct spin-draw method. In that regard, Claim 15 has been amended to recite that the multifilament yarn is subjected to one step drawing. Support may be found throughout the originally-filed application such as the main paragraph describing Fig. 1 on page 13 wherein it can be seen that drawing is achieved between first heated roller 4 and second heated roller 5. This is inherently a one step drawing process. Further support may be found in Example 1. Claim 15 also now recites that the multifilament yarn is subjected to an interlacing treatment with an interlacing treatment nozzle that cools the multifilament yarn and controls the tension gradient. Support may be found in line 1 of page 14 of the Applicants' specification.

Entry of the above changes into the official file and consideration on the merits is respectfully requested.

All of the claims stand rejected under 35 USC §103 over the combination of Rowan, Toshio, Palmer and Negishi with Fujimoto. The Applicants note with appreciation the Examiner's comments applying the combination against the claims. The Applicants nonetheless respectfully submit that the methodology resulting from the combination as set forth in the rejection would still fail to result in the Applicants' claimed methodology as set forth in independent Claim 15. Details follow.

The Applicants have discovered that it is possible to balance competing goals for preventing package tightening and soft stretch property in direct spin-draw process of polytrimethylene terephthalate. The two measures that achieve this balance are:

(1) High breaking extension of the multifilament yarn (breaking extension of 40% or more). To achieve this property, the Applicants adopt a relatively low draw ratio between the first

heated roll and the second heated roll at a low draw rate.

(2) High elastic recovery of multifilament (an elastic recovery following 10% elongation of at least 90%).

The Applicants thus successfully achieved a balance of the above competing goals for preventing package tightening and soft stretch property in spin-drawing of polytrimethylene terephthalate at high levels as shown in Table 1 of the Applicants' specification.

In sharp contrast, Fujimoto does not even recognize the issue of balancing the above competing goals much less disclose, teach or suggest a solution or the Applicants' solution. For example, Table 2 shows that in the Example 2 of Fujimoto, elastic recovery is 90%, but elongation ("elongation" is the synonym of "breaking extension") is 25%. Example 8 of Fujimoto has an elongation of 40%, but elastic recovery is 77%. Both Fujimoto Examples are far too low.

On the other hand, Rowan and Palmer merely disclose multifilament yarn made of polyethylene terephthalate polymer. That is not polytrimethylene terephthalate. Consequently, such multifilament yarn intrinsically cannot take on a high level of elastic recovery as polytrimethylene terephthalate multifilament because of polymeric properties. Accordingly, the Applicants' method is not disclosed, taught or suggested in these two publications.

Separately, Toshio and Negishi do not disclose a direct spin-draw process. Consequently, those processes do not suffer from package tightening ("Direct spin-draw process" means a process which adopts direct drawing step of un-oriented spun fiber without winding after spinning step to obtain oriented fiber. Toshio or Negishi adopt conventional processes (after winding un-oriented spun fiber, then, proceed to the next drawing step). Accordingly, the Applicants' method is not disclosed, taught or suggested in these two publications.

The Applicants respectfully submit that in view of the above described failures of Fujimoto,

Rowan, Palmer, Toshio and Negishi to disclose, teach or suggest the above-described aspects of the claimed methodology, the rejection is inapplicable. The Applicants nonetheless recognize the Examiner's helpful comments in the "Response to Arguments" portion of the Response, particularly on page 11, and note that Claim 15 now specifically recites that the interlacing is conducted with a yarn cooling device, the yarn is for clothing use and that there is no second drawing step inasmuch as Claim 15 recites that the multifilament yarn is subjected to one step drawing. The Applicants therefore respectfully submit that these are additional compelling reasons, the details of which were presented in the Applicants' last Response, in favor of nonobviousness. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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